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Dkt. 1141/72716

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Listing of Claims

The following listing of claims will replace all prior versions, and listings, of claims in the subject application:

Claims 1-19 (canceled).

20. (new) An X-ray CT apparatus for generating a subject tomographic image by reconstructing projection data acquired by scanning a predetermined slice of a subject, said X-ray CT apparatus comprising detecting means for determining a static cardiac time phase with a small amount of motion artifacts in a predetermined portion of the subject based on heartbeat information acquired in association with the projection data, and image reconstructing means for generating the subject tomographic image by reconstructing projection data corresponding to the static cardiac time phase detected by the detecting means,

wherein the detecting means comprises

sample tomographic image reconstructing means for generating a plurality of sample tomographic images having a different cardiac time phase, based on the projection data and the heartbeat information, and

selecting means for calculating an integrated value of a CT value of each of the plurality of sample tomographic images in a predetermined region and for selecting a sample tomographic image with a smallest fluctuation of the integrated value of the CT value, and

said image reconstructing means generates the subject tomographic image by reconstructing projection data corresponding to the cardiac time phase of the sample tomographic image selected by the selecting means.

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21. (new) An X-ray CT apparatus according to claim 20, wherein an image size of the sample tomographic image is set smaller than that of the tomographic image.

22. (new) An X-ray CT apparatus according to claim 20, further comprising memory means for storing the projection data acquired over a plurality of heart beat cycles and a projection data synthesizing means for reading the projection data corresponding to the static cardiac time phase detected by the detecting means and synthesizing the projection data, wherein said image reconstructing means reconstructs the projection data synthesized by the projection data synthesizing means.

23. (new) An X-ray CT apparatus according to claim 20, wherein said sample tomographic image generating means generates the plurality of sample tomographic images in a predetermined cardiac time phase range determined based on the correlation data between the heartbeat information and the static cardiac time phase that are determined previously.

24. (new) An X-ray CT apparatus according to claim 23, wherein the correlation data is prepared to each of different portions of the subject, and said detecting means comprises input means for setting the predetermined portions.

25. (new) An X-ray CT apparatus according to claim 23, wherein the correlation data includes at least a correlation between a heart rate and a static cardiac time phase.

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26. (new) An X-ray CT apparatus for generating a tomographic image by reconstructing projection data acquired by scanning a predetermined slice of a subject, said x-ray CT apparatus comprising detecting means for determining a static cardiac time phase with a small amount of motion artifacts in a predetermined portion of the subject based on heartbeat information acquired in association with the projection data, and image reconstructing means for generating the tomographic image by reconstructing projection data corresponding to the static cardiac time phase detected by the detecting means,

wherein the detecting means determines the static cardiac time phase based on correlation data between the heartbeat information and the static cardiac time phase that are previously determined for each subject.

27. (new) An X-ray CT apparatus according to claim 26, wherein the correlation data is prepared to each of different portions of the subject, and the detecting means comprises input means for setting the predetermined portions.

28. (new) An X-ray CT apparatus according to claim 26, wherein the correlation data includes at least a correlation between a heartbeat rate and a static cardiac time phase.

29. (new) An X-ray CT apparatus according to claim 26, further comprising memory means for storing the projection data acquired over a plurality of heart beat cycles and a projection data synthesizing means for reading the projection data corresponding to the static cardiac time phase detected by the detecting means and synthesizing the projection data, wherein said image reconstructing means reconstructs the projection data synthesized by the projection

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data synthesizing means.

30. (new) An X-ray CT imaging method for generating a subject tomographic image by reconstructing projection data acquired by scanning a predetermined slice of a subject, said X-ray CT imaging method comprising the steps of:

(a) reconstructing a plurality of sample tomographic images having respective different cardiac time phases and generated based on the projection data and the heartbeat information;

(b) calculating an integrated value of a CT value of each of the plurality of sample tomographic images in a predetermined region;

(c) selecting a sample tomographic image with a smallest fluctuation of the integrated value of the CT value;

(d) determining a static cardiac time phase corresponding to the sample tomographic image selected in step (c); and

(e) reconstructing the subject tomographic image using the projection data corresponding to the static cardiac time phase determined in step (d).

31. (new) An X-ray CT imaging method according to claim 30, wherein an image size of the sample tomographic image is set smaller than that of the tomographic image.

32. (new) An X-ray CT imaging method according to claim 30, further comprising acquiring correlation data between heartbeat information and the static cardiac time phase to each subject, wherein the plurality of sample images are generated in a predetermined cardiac time phase range determined based on the correlation data.